

**U.S. DEPARTMENT OF AGRICULTURE  
FOREST SERVICE**

**SPECIFICATION**

**WATERBAGS, 5 GALLON, NYLON DUCK, DRINKING AND SUPPRESSION  
(WITH REPLACEABLE LINERS)**

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers 5 gallon nylon duck suppression and drinking waterbags with replaceable liners.

1.2 Classification. The waterbags shall be of the following types:

- Type I - Drinking
- Type II - Suppression

2. APPLICABLE DOCUMENTS

2.1 Government documents. The following government documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

2.1.1 Government specifications and standards.

SPECIFICATIONS

FEDERAL

- A-A-55126 - Fastener Tape, Hook and Pile, Synthetic
- A-A-55301 - Webbing, Textile, Textured or Multifilament Nylon
- V-T-295 - Thread, Nylon
- DDD-L-20 - Label: For Clothing, Equipage, and Tentage (General Use)

MILITARY

- MIL-W-4088 - Webbing, Textile, Woven Nylon
- MIL-P-18080 - Plastic Sheets, Vinyl, Flexible, Transparent, Optical Quality

Beneficial comments (recommendations, additions, deletions) and any pertinent data that may be used in improving this document should be addressed to: USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294 by using the Specification Comment Sheet at the end of this document or by letter.

USDA FOREST SERVICE

5100-86 - Cloth, Duck, Nylon (Polyurethane Coated)  
5100-95 - Liners, Replaceable, for 5- and 55-Gallon Water Bags

STANDARDS

FEDERAL

FED-STD-123 - Marking for Shipment (Civil Agencies)  
FED-STD-376 - Preferred Metric Units for General Use By the Federal Government

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Defense Automated Printing Service, Building 4D, 700 Robbins Ave., Philadelphia, PA 19111-5094. Copies of Forest Service specifications 5100-86 and 5100-95 are available from USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294.)

2.1.2 Other Government publications. The following other Government publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

DOCUMENTS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

21 CFR 121 - Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder.

(The Code of Federal Regulations is for sale on a subscription basis from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325. Reprints of certain regulations may be obtained from the federal agency responsible for issuing them.)

DRAWINGS

USDA FOREST SERVICE

MTDC-832 - Waterbag, Nylon Duck, 5 Gallon, Suppression  
MTDC-834 - Waterbag, Nylon Duck, 5 Gallon, Drinking

(Copies of Forest Service drawings are available from USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294.)

2.2 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those in effect on the date of the invitation for bids or request for proposals.

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQC Z1.4 - Sampling Procedures and Tables for Inspection By Attributes

(Copies are available from the American Society of Quality Control, 611 East Wisconsin Ave., Milwaukee, WI 53202.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

- D 1974 - Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Shipping Containers
- D 3951 - Standard Practice for Commercial Packaging
- D 5118 - Standard Practice for Fabrication of Fiberboard Shipping Boxes
- D 6193 - Standard Practice for Stitches and Seams

(Copies are available from ASTM, 100 Barr Harbor Dr., West Conshohocken, PA 19428-2959.)

NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION, INC., AGENT

National Motor Freight Classification

(Copies are available from the American Trucking Associations, Inc., 2200 Mill Rd., Alexandria, VA 22314.)

NATIONAL SANITATION FOUNDATION (NSF)

- Standard No. 60 - Drinking Water Treatment Chemicals - Health Effects
- Standard No. 61 - Drinking Water System Components - Health Effects

(Copies are available from the National Sanitation Foundation, 3475 Plymouth Rd. P.O. Box 1468, Ann Arbor, MI 48106.)

(Non-Government standards and other publications normally are available from the organizations that prepare and distribute the documents. These documents also may be available in or through libraries or other informational services.)

2.3 Order of precedence. In the event of conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS

3.1 First article. Unless otherwise specified (see 6.2), samples shall be subjected to first article inspection (see 6.4) in accordance with 4.3.

3.2 Materials and components. Materials and components shall be as specified herein and in drawings MTDC-832 and MTDC-834.

3.2.1 Cloth, duck, nylon (polyurethane coated). The base material nylon duck shall conform to type III of Forest Service specification 5100-86. The harness cover nylon duck shall conform to type II of Forest Service specification 5100-86. The color of the type I waterbag (base material and harness cover) shall be royal blue and shall match the standard shade sample (see 6.3). The color of the type II waterbag (base material and harness cover) shall be bright yellow and shall match the standard shade sample (see 6.3)

3.2.2 Nylon webbing.

3.2.2.1 1 inch. The 1-inch webbing shall conform to type III or type III alternate of A-A-55301. The color shall be black.

3.2.2.2 1-15/16 inch. The 1-15/16-inch webbing shall conform to type XXIV, class 2 of MIL-W-4088. The color shall be black.

3.2.3 Fastener tape. The fastener tape shall conform to 1 inch, type II, class 1 of A-A-55126. The color shall be black.

3.2.4 Thread, nylon. The thread shall conform to type II, class A of V-T-295. The thread for all stitching shall be size FF, except bartacking. For bartacking, the thread shall be size E. The color for all thread shall be black.

3.2.5 Harness padding. Harness padding shall be a 1/2-inch-thick vinyl-nitrile conforming to Rubatex Corp. stock no. R-310-V. The color shall be buff.

3.2.6 Plastic hardware. The plastic items specified by 3.2.6.1 through 3.2.6.3 shall be black acetal plastic (see 6.5).

3.2.6.1 1-inch buckle. The 1 inch buckle shall conform to ITW Waterbury Side Release Buckle, part no. 101-0100; American Cord & Webbing Side Release, part no. BSR-1; National Molding Corp. Mojave Side Squeeze Buckle, part nos. 5000/5001 (male/female); or American Cord & Webbing part no. BSR-1 inch. The mating components of the buckle shall be manufactured by the same company to ensure compatibility.

3.2.6.2 1-inch snaphook. The 1-inch snaphook shall conform to ITW Waterbury Interlock Snaphook, part no. 106-0000; American Cord & Webbing WSB Web Snap Body; or National Molding Corp. Feel-Safe Snaphook, part no. 4402.

3.2.6.3 1-inch strap adjuster. The 1-inch strap adjuster shall conform to ITW Waterbury Triglidge, part no. 105-0100; National Molding Corp. Sliplok, part no. 4129; or American Cord & Webbing Single Bar Slide, part no. SB.

3.2.7 Reinforcement ring. The reinforcement ring around each bag fitment opening shall be fabricated from polyvinyl chloride film 0.040 inch thick. The film used shall be a single layer formed from chlorine-bearing vinyl resin. The film shall be colorless and intended for use in a temperature range of 0°F to 130°F. Only phosphate, phthalate, or both, plasticizers shall be used. The use of water soluble compounding ingredients is prohibited. The film shall meet the requirements of table I.

Table I. Physical requirements of Polyvinyl film

Characteristic	Requirement	Test
Thickness	0.020 ±0.002 inch	Direct measurement
Tensile strength	2200 psi, minimum	ASTM D 882 <u>1/</u>
Ultimate elongation - machine direction	200% minimum	ASTM D 882 <u>1/</u>
Ultimate elongation - transdirection	250% minimum	ASTM D 882 <u>1/</u>
Tear resistance, Graves (both directions)	7.5 lbs. Minimum	ASTM D 1004
Clark Stiffness at 34°F ±2°F	22	FED-STD-191, Method 5204
Volatility	2% maximum	ASTM D 1203
Resistance to weathering	3.2.4.1	FED-STD-191, Method 5670 <u>2/</u>
Cold crack at 0° ±2°F	3.2.4.2	FED-STD-191, Method 5874

1/ 1 inch wide specimen.

2/ For 100 hours.

3.2.7.1 Resistance to weathering. When tested as specified in table I, the polyvinyl film shall show no appreciable stiffening, cracking, crazing, discoloration, tackiness, or exudation of plasticizer from the film. Appreciable shall mean a change that is immediately noticeable in comparing the tested specimen with the original.

3.2.7.2 Cold crack. When tested as specified in table I, the polyvinyl film shall show no evidence of cracking.

3.2.8 Identification label. The identification label shall be a sewn-on coated cloth label conforming to type VI, class 5 of DDD-L-20, except "size" shall be deleted, and shall be a minimum of 2 by 3 inches. The size of inscription characters shall be a minimum of 3/16-inch-high letters. Label location shall be as shown in drawing MTDC-832. Label contents shall be as follows:

**WATERBAG, NYLON DUCK, 5 GALLON, SUPPRESSION or WATERBAG, NYLON  
DUCK, 5 GALLON, DRINKING<sup>1/</sup>  
NSN [...]<sup>2/</sup>  
USFS SPEC 5100-103A  
[CONTRACT NO.]<sup>2/</sup>  
[MANUFACTURER'S NAME]<sup>2/</sup>  
DATE OF MANUFACTURE: [mm/yy]<sup>2/</sup>**

<sup>1/</sup> As applicable.

<sup>2/</sup> The contractor shall insert the applicable information indicated.

3.2.8.1 Label margins. All labels shall be provided with a 1/4 ±1/16-inch blank margin on all four sides to facilitate sewing.

3.2.8.2 Date of manufacture. The date of manufacture shall be the month and year manufacturing starts under the contract in force.

### 3.2.9 Liners.

3.2.9.1 Type I. The liners for the type I waterbag shall be Liqui-Box Corp. Liner WS185L-3, Spout B1S, and Valve T15; or Scholle Corp. style R-0024-11-565 with style 1100 dispensing spigot; or Scholle Corp. style N-0020-11-563 with style 1100 dispensing spigot. Liners shall meet all requirements of 21 CFR 121, Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder that pertain to materials in contact with drinking water and National Sanitation Foundation standards 60 and 61. Finished liners shall impart no objectionable odor or any noticeable taste to the water. They shall be clean, well finished, and free from dirt, oil, foreign matter, rough or sharp edges, scratches, scuffs, cracks, creases, tears, cuts, holes, and blisters.

3.2.9.2 Type II. The liners for the type II waterbag shall conform to the type III liner of Forest Service specification 5100-95.

3.2.10 Quick disconnect coupling (type II only). The type II waterbag shall have a female quick disconnect coupling included. The coupling shall have 3/8-inch male pipe thread and shall conform to Amflo part no. C25 or Parker Fluid Connectors part no. 14 (see 6.5).

3.2.11 Foam sheeting (type I only). The foam insulating sheeting for the type I waterbag shall be 1/8 inch (minimum) thick closed cell polyethylene cushioning foam with a density of 1.8 lbs./sq. ft. (minimum). The sheeting shall be produced from rolled stock with skin on both sides. Dimensions and placement of spigot hole shall be as shown in MTDC-834.

3.3 Construction. Construction shall conform in all respects to drawing MTDC-832 or MTDC-834 as applicable, and as specified herein.

3.3.1 Stitches, seams, and stitchings. All stitching, except bartacking, shall conform to type 301 of ASTM D 6193, 6 to 8 stitches per inch.

3.3.1.1 Type 301 stitching. Ends of all stitching shall be backstitched or overstitched a minimum of 1 inch (1/2 inch for box-x) except where ends are turned under or caught in other seams or stitching. Thread tension shall be maintained so there will be no loose bobbin or top thread or excessively tight stitching resulting in puckering of the materials sewn. The lock shall be embedded in the materials sewn.

3.3.1.1.1 Repairs of type 301 stitching. Repairs of type 301 stitching shall be as follows (when making the following repairs, the ends of the stitching are not required to be backstitched):

- a. When thread breaks or bobbin runouts occur during stitching, except presewing, the stitching shall be repaired by restarting the stitching a minimum of 1 inch (1/2 inch for box-x) back of the end of the stitching.
- b. Except for prestitching, thread breaks or two or more consecutive skipped or runoff stitches noted during inspection of the item (inprocess or end item) shall be repaired by overstitching. The stitching shall start a minimum of 1 inch in back of the defective area (1/2 inch on box-x), continue over the defective area to a minimum of 1 inch into existing stitching. Loose or excessively tight stitching shall be repaired by removing the defective stitching, without damaging the materials, and restitching in the required manner.

3.3.1.2 Bartacking. Bartacking shall be free from thread breaks and loose stitching. Unless otherwise specified, bartacks shall be 3/4 inch  $\pm$ 1/16 inch long, 1/8 inch  $\pm$ 1/32 inch wide, and have 42 stitches per bartack.

3.3.1.3 Automatic stitching. Automatic machines may be used to perform any of the stitch patterns provided the requirements for the stitch pattern, stitches per inch, size, and type of thread, are met; and at least three or more tying, overlapping, or backstitches are used to secure the ends of the stitching.

3.3.1.4 Thread ends. All thread ends shall be trimmed to 1/4 inch maximum length.

3.3.1.5 Lubrication of thread. There shall be no lubrication of the thread by any means, before or during sewing (see 4.3.2).

3.3.1.6 Stitching margins. Unless otherwise specified, all stitching margins shall be 1/8 inch.

3.3.2 Fusing ends of webbing. All ends of nylon webbing shall be fused before assembly for stitching. The apparatus used to fuse webbing ends shall provide enough heat to create a smooth edge and with the cut ends of all webbing yarns fused together.

3.3.3 Location marks. Location marks may be drilled, providing the drill diameter does not exceed 0.076 inch (see 4.3.3). All drill holes shall be covered on the finished item. Printed markings shall be no more than 1/32 inch in width.

3.3.4 Repairs. Repairs such as mends, darns, patches, or splices are not permitted on any components of the water bag.

3.3.5 Piecing. No piecing or splicing of materials is allowed.

3.3.6 Replacement of defective components. During the spreading, cutting, and manufacturing process, components having material defects or damages that are classified as defects in 4.3.4.1 shall be removed from production and replaced with nondefective and properly matched components.

3.3.7 Coated cloth surface. The coated side of the cloth shall face the inside of the completed water bag.

3.4 Marking. The letters "FSS" and the words "DRINKING WATER" (for the type I waterbag) or "NOT FOR DRINKING" (for the type II waterbag) shall be silk-screen printed to the face side of the cloth with a black marking medium, in the location and size characters shown in the drawings (MTDC-832 or MTDC-834) and shall conform to type IV, class 9 of DDD-L-20. Fastness of the class 9 marking shall be as specified for class 5 marking. The color of the cloth components shall not be visible under the markings.

3.5 Dimensions. All dimensions except pattern sizes are finished dimensions.

3.6 Patterns. Standard patterns for textile components other than tape or webbing are shown full scale on drawings and provide allowances for all seams and shall be used for making working patterns. The working patterns shall be identical to Government standard patterns, which shall not be altered in any way. All parts shall be within 1/8 inch of the location(s) shown on the pattern(s).

3.7 Workmanship. All water bags shall conform to the quality of product established by this document. The occurrence of defects shall not exceed the applicable quality levels. There shall be no defects that affect use, appearance, or serviceability.

3.8 Metric products. Products manufactured to metric dimensions will be considered on an equal basis with those manufactured using inch/pound units, provided they fall within the tolerances specified using conversion tables contained in the latest revision of FED-STD-376, and all other requirements of this specification are met.

3.9 Recovered materials. The contractor/offeror is encouraged to use recovered materials to the maximum extent possible in accordance with paragraph 23.403 of the Federal Acquisition Regulation (FAR).

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his/her own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in this specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.1.2 Responsibility for dimensional requirements. Unless otherwise specified in the contract or purchase order, the contractor is responsible for ensuring that all specified dimensions have been met. When dimensions cannot be examined on the end item, inspection shall be made at any point or at all points in the manufacturing process necessary to ensure compliance with all dimensional requirements.

4.1.3 Certification of compliance. Unless otherwise specified, certificates of compliance supplied by the manufacturer of the item, component, or material, listing the specified test method and test results obtained, may be furnished in lieu of actual lot by lot testing performed by the contractor (see 4.3.2). When certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Sampling for inspections and tests. Sampling for inspections and tests shall be made in accordance with ANSI/ASQC Z1.4. The inspection level and acceptable quality level (AQL) shall be as specified. All field packs manufactured at one time shall be considered a lot for purposes of acceptance inspection and test. A sample unit shall be one complete field pack.

4.3 Quality conformance inspection. Each end item lot shall be sampled and inspected as specified in 4.3.4.1 and 4.3.4.2. The packaging shall be sampled as specified in 4.4. Unless otherwise specified (see 6.2), first articles submitted in accordance with 3.1 shall be inspected as specified in 4.3.4.1 and 4.3.4.2 except that packaging is not required when first articles are presented. The presence of any defect or failure to pass any test shall be cause for rejection of the first article.

4.3.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced documents, drawings, and standards unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase document.

4.3.2 Certification. Unless otherwise specified (see 6.2), as part of first article presentations and lot inspections, it shall be acceptable for the contractor to provide certificates of compliance for all materials and components in lieu of lot by lot testing, except as specified in 4.3.2.1. In addition, when the contractor changes component or material suppliers, a new certification based on actual test results shall be required. The contractor shall furnish a certificate of compliance for the requirements of 3.3.1.5 prohibiting use of thread lubricants before or during sewing. All certificates of compliance shall include:

- Product description, including specification, type, class, and form when applicable
- Quantity purchased
- Date of manufacture
- Purchase source, address, and telephone number
- Purchase date
- Lot number traceable to materials used in production
- Contract number

4.3.2.1 Test values. The contractor shall provide actual test values for the characteristics of the basic cloth (3.2.1) for every new lot of each type of cloth purchased. Such test reports, traceable to each lot of component materials used in production of the field pack, shall be maintained at the inspection point specified in the contract. Copies of these test reports shall be made available to the Government representative upon request.

4.3.3 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine whether cut lengths, cut parts, markings for location of components, and location of assembled component parts are in accordance with specified requirements. Inspection shall be made to determine that holes drilled for location marking do not exceed 0.076 inch diameter and are placed in such a manner that each shall be covered in the finished item (see 3.3.3). Whenever nonconformance is noted, corrections shall be made to the parts affected and lot in process. Components that cannot be corrected shall be removed from production.

4.3.4 End item examination.

4.3.4.1 End item visual examination. The end items shall be examined for the defects list in table II on a lot by lot basis. The lot size shall be expressed in units of complete field packs. The inspection level shall be S-3, and the acceptable quality level (AQL), expressed in terms of defects per hundred units, shall be 4.0 for major defects and 15.0 for combined major and minor defects. Unless otherwise specified, defects shall be scored on an individual basis, i.e., each seam, each stitching end, each dimension, etc.

TABLE II. End item visual defects

Examine	Defect	Classification	
		Major	Minor
Nylon cloth	Hole, cut, or tear	X	
	Any abrasion mark, smash, large slub, broken or missing yarn, multiple float, or open place, clearly visible at normal inspection distance (3 feet)	X	
	Needle chew	X	
	NOTE: Needle holes visible as the result of broken or skipped stitching or stitching that has been removed shall not be considered as needle chews providing that the holes are spaced in the normal stitch range.		
	Color not as specified	X	
	Shade bar, fine or coarse filling bar		X
	Coated side of cloth not facing inward	X	
Webbing	Coating defective or partially omitted		X
	Size, or type not as specified	X	
	Color not as specified	X	
	Any hole, cut, tear, or smash	X	
	Abrasion mark, slub, broken end, or pick		X
	Cut ends not fused as specified	X	
	Treatment not as specified	X	
	Not firmly and tightly woven	X	
	Edges frayed or scalloped	X	
Multiple floats		X	
Thread	Type, class, subclass, or size not as specified	X	
	Any thread lubricated	X	
	Color not as specified		X
Fastener tape	Size or type not as specified	X	
	Location not as specified	X	
	Color not as specified		X
Hardware general	Any part broken, cracked, chipped, distorted, twisted, or out of shape	X	
	Any dirt or flash		X
	Any deep scratch or gouge		X
	Gates not trimmed		X
	Surface not smooth		X
	Any pit, void, crazing, air pocket, blister, or imbedded foreign matter that affects serviceability	X	
	Evidence of spray or jetting marks	X	
(cont)			

TABLE II. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
Buckles	Size or type not as specified	X	
	Mating components not from same manufacturer	X	
	Latch and latch receptacle do not mate	X	
	Webbing incorrectly threaded through male buckle	X	
	Male buckle upside down	X	
	NOTE: Each plastic quick-release buckle shall be latched and unlatched three times to determine whether it operates smoothly and provides a secure closure.		
Snaphook	Size or type not as specified	X	
	Webbing incorrectly threaded through snaphook	X	
Seams and stitching:			
Open seam	1/2 inch or less		X
	More than 1/2 inch	X	
	NOTE: A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more consecutive skipped stitches or runoff stitches occur. On double stitched seams, a seam shall be considered open when either one or both sides of the seam are open.		
Raw edge (on edge required to be finished)	More than 1/2 inch when securely caught in stitching		X
	NOTE: Raw edge not securely caught in stitching shall be classified as an open seam.		
Run-off (see open seam)			
Seam and stitch type	Seam or stitch type not as specified	X	
	Required row of stitching omitted or not located as specified	X	
Bartacks	Any bartacks omitted	X	
	Any bartack not as specified or not in specified location		X
	Stitching loose, incomplete or broken	X	
(cont)			

TABLE II. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
Stitch tension	Loose, resulting in a loose bobbin or top thread		X
	Excessively tight, resulting in puckering of material		X
	NOTE: Defects to be scored only when the condition exists for 4 inches or more or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams.		
Stitches per inch	Up to two stitches less than minimum specified		X
	Three or more stitches less than minimum specified	X	
	Two or more stitches in excess of maximum specified		X
	NOTE: Variation in the number of stitches per inch caused by the operator speeding up the machine and pulling the fabric in order to sew over heavy seams or in turning corners, shall be classified as follows: (a) Within the minor defect classification - no defect (b) Within the major defect classification - minor defect		
Stitch margin (not otherwise classified)	Exceeds specified tolerance, up to 1/16 inch		X
	Exceeds specified tolerance, over 1/16 inch	X	
	NOTE: Defects to be scored only when the condition exists for 4 inches or more or in several areas with an accumulated distance of 8 inches or more. Applicable to individual seams.		
Stitching ends	Not secured as specified		X
Thread breaks, skipped stitches, or run-offs	Not overstitched as specified		X
	NOTE: Thread breaks, or two or more consecutive skipped or run-off stitches not overstitched shall be classified as open seams.		
Rows of stitching	Any row missing except on box stitching	X	
	On box stitching: - One row of stitching omitted		X
	- Two or more rows of stitching omitted	X	
Components and assembly	Any component part omitted or not as specified or any operation omitted or not as specified (unless otherwise classified herein)	X	
	Needle chews	X	
	Any mend, darn, patch, splice or other unauthorized repair	X	
	Any material pleated or caught in stitch where not specified		X

(cont)

TABLE II. End item visual defects (continued)

Examine	Defect	Classification	
		Major	Minor
Piecing	Any piecing or splicing	X	
Cleanness	Grease, oil, dirt, or ink stains clearly noticeable	X	
	Thread ends not trimmed to 1/4 inch or less		X
Liner (1/)	Liner missing	X	
	Type I liner not as specified	X	
Identification label	Wrong type or class	X	
	Incorrect type size or information	X	
	Not in location specified	X	
	Incorrect label margins		X
Reinforcement ring	Wrong type or class	X	
	Wrong thickness	X	
Quick-disconnect coupling	Not as specified	X	
Cutting	Any component part not cut in accordance with directional lines	X	
Location markings	Not covered on finished item		X
	Exceeding size specified		X
Markings	Omitted, incorrect, illegible, misplaced, or size of characters not as specified	X	
	Cloth color visible under black marking medium		X

1/ The type II liner shall be inspected for visual and dimensional defects in accordance with Forest Service specification 5100-95.

4.3.4.2 End item dimensional examination. End items shall be examined for the defects listed in table III on a lot by lot basis. Only those dimensions that can be evaluated without damaging or disassembling the end items shall be examined. The inspection level shall be S-3. An AQL, expressed in terms of defects per hundred units, shall be 6.5 for major defects and 15.0 for combined major and minor defects.

TABLE III. End item dimensional defects

Examine	Defect	Classification	
		Major	Minor
Dimensions (overall)	Smaller than nominal dimensions less applicable minus tolerance indicated on drawings, but not smaller than nominal dimensions less twice the applicable minus tolerances		X
	Smaller than nominal dimensions less twice the applicable minus tolerance	X	
	Larger than nominal dimensions and applicable plus tolerance		X
Component and location dimensions	Not within specified tolerance		X
Box, box-x and w-w stitching	Dimensions not as specified		X
Stitch margin and gauge	Not within specified tolerance		X

4.4 Packaging inspection. An examination shall be made to determine that packing and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully packaged except that it shall not be palletized and it need not be closed. Shipping containers fully packaged that have not been palletized shall be examined for defects in closure. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

<u>Examine</u>	<u>Defect</u>
Markings	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing or not as specified.
Workmanship	Any component damaged, affecting serviceability.
	Inadequate application of components, such as: incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling.
	Bulged or distorted container.
	Open or noncontinuous heat-sealed seams and closures of polyethylene bags
Contents	Incorrectly fabricated polyethylene bag
	Number per container is more or less than required.

## 5. PACKAGING

5.1 Preservation. Preservation shall be in accordance with ASTM D 3951 and as specified in the contract or purchase order.

### 5.1.1 Folding.

5.1.1.1 Folding, type I. The complete type I unit shall include a nylon duck outer bag, two liners as specified with dispenser spigots, the foam insulator, and a harness. The foam insulator shall be inserted with the fold to the bottom of the waterbag and the spigot hole position at the spigot hole in the waterbag. One liner shall be inserted into the nylon duck outer bag, with the spigot positioned through the spigot holes in the insulator and the outer bag. The fastener tape on the outer bag shall be closed. The harness and the second liner shall be folded as necessary to fit the external pocket and shall be put in the external pocket of the outer bag and the fastener tape on the pocket closed. With the water bag laying flat, "FSS" marking down, the bag shall be rolled up bottom to top.

5.1.1.2 Folding, type II. The complete type II unit shall include a nylon duck outer bag, two liners each with one female fitment and one fitment cap, a harness with snap hook, and one metal female quick-disconnect coupling for attachment to the fitment cap. One liner shall be inserted into the nylon duck outer bag, with the female fitment positioned through the fitment hole in the outer bag. The fitment cap shall be threaded hand tight onto the female fitment. The fastener tape on the outer bag shall be closed. The harness, female quick-disconnect coupling, and the second liner (folded as required in 5100-95) with fitment cap in place, shall be put in the external pocket of the outer bag, and the fastener tape on the pocket closed. With the water bag laying flat, "FSS" marking down, the bag shall be rolled up bottom to top.

5.1.2 Unit pack. Each water bag prepared in accordance with 5.1 and folded in accordance with 5.1.1 shall be inserted into a snug-fitting clear polyethylene film bag. Bag closure shall be effected by heat sealing, with the seal made as close as possible to the open end and excess air within the bag being expelled during the final heat-sealing closure operation.

5.2 Packing. Ten (10) water bags packaged as specified shall be packed in a close-fitting fiberboard box, minimum burst strength 275 psi meeting the requirements of the latest version of ASTM D 5118. Boxes shall be in compliance with the National Motor Freight Classification. Each box shall be closed in accordance with the latest version of ASTM D 1974, except that the inspection shall be in accordance with 4.4.

5.3 Marking. In addition to any special marking required by the contract or purchase order, shipping containers and unit packs shall be marked in accordance with FED-STD-123. Bar code marking is required.

5.3.1 Special box marking. In addition to the box markings specified above, the shipping container shall have the respective NFES number, preceded by "NFES" placed under the NSN. Each shipping container shall be also clearly marked "STORE IN COOL, DRY PLACE".

## 6. NOTES

6.1 Intended use. This nylon water bag with replaceable liners is designed to provide suppression water to crews engaged in wildland firefighting and prescribed fire activities.

6.2 Acquisition requirements. Acquisition documents should specify the following:

- a. Title, number, and date of the specification.
- b. Type of waterbag.
- c. When first article samples are not required (see 3.1, 4.3, and 6.4).
- d. When lot by lot testing is required in lieu of certificates of compliance (see 4.3.2).
- e. Preservation, packing, and marking required in addition to specification requirements (see section 5).

6.3 Standard shade sample. Color shade samples for the bright yellow basic cloth may be obtained from the preparing activity (see 6.7).

6.4 First article. When first articles are required, they shall be inspected and approved under the appropriate provisions of Federal Acquisition Regulation 52.209. The first article shall consist of three completely assembled water bags covered by this specification and shall be preproduction samples. The contracting officer should include specific instructions regarding arrangements for selection, inspection, and approval of the first article.

6.5 Suggested sources of supply.

Acetal Plastic Hardware

American Cord & Webbing Co., Inc.  
1 Carrington St.  
Lincoln, RI 02865

ITW Waterbury  
952 South Main St.  
Waterbury, CT 06721

National Molding Corp.  
5 Dubon Court  
Farmingdale, NY 11735-1065

Female Quick-Disconnect Coupling

Amflo  
1111 E. McFadden Ave.  
Santa Ana, CA 92705

Parker Fluid Connectors  
Quick Coupling Division  
8145 Lewis Rd.  
Minneapolis, MN 55427

Harness Padding

Rubatex Corp.  
P.O. Box 340  
Bedford, VA 24523-0340

Type I Liner

The Lighthouse for the Blind,  
Inc.  
2501 South Plum St.  
Seattle, WA 98114

Type II Liner

Liqui-Box Corp.  
P.O. Box 494  
Worthington, OH 43085

Scholle Corp.  
200 W. North Ave.  
North Lake, IL 60164

6.6 Notice. When Government drawings, documents, or other data are used for any purpose other than in connection with a definitely related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever.

6.7 Preparing activity. USDA Forest Service, Missoula Technology and Development Center, Building 1, Fort Missoula, Missoula, MT 59804-7294.

# Standardization Document Improvement Proposal

This form is provided to solicit beneficial comments that may improve this document and enhance its use. Contractors, government activities, manufacturers, vendors, and users are invited to submit comments to:

USDA Forest Service  
Missoula Technology and Development Center  
Building 1, Fort Missoula  
Missoula, MT 59804-7294

Attach any additional pertinent information that may be of use in improving this document to this form and mail in an envelope. A response will be provided when the submitter includes their name and address.

NOTE: This form shall not be used to submit requests for waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the document, or to amend contractual requirements.

Document Identification: **5100-103A - WATERBAGS, 5 GALLON, NYLON DUCK, DRINKING AND SUPPRESSION (WITH REPLACEABLE LINERS)**

Submitter's Name (Optional. Please print or type): \_\_\_\_\_

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Recommended change(s): \_\_\_\_\_

Reason for recommended change(s): \_\_\_\_\_

Remarks:

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